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Conversion of heavy oil in supercritical water with nano particles of caustobiolith

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© SGEM2018. In recent years the interest in supercritical fluids is growing. The transition of water into the supercritical state occurs in a closed volume when it reaches the temperature of 374°C and the pressure of 21.8 MPa. At that, the boundary between liquid and vapor disappear a new state of water has a low viscosity and a high diffusion capacity. To analyze the bituminous oil in supercritical water with ultra-dispersed magnetite particles andcaustobiolith. Experiments conducted in a closed reactor under conditions that allow the transition from the aqueous phase into the supercritical fluid. The general regularities of fundamental change, of particular group composition are shown. The viscosity properties of the original and the converted oil investigated. The performed studies on the conversion of heavy oil in supercritical water medium with the presence of coal and magnetite particles show that under selected conditions the macromolecular degradation processes of heavy oil components occur (asphaltenes and resins), and hydrogenation processes occur with the formation of light hydrocarbon fractions. In the experiment products, they observe significant changes in the component and the fractional composition that is accompanied by the formation of gasoline fractions, which were virtually absent in the original oil.

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Keywords

Caustobiolith, Elemental composition, Heavy oil, Supercritical water

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